

Koch, Kristine

From: GAINER Tom <GAINER.Tom@deq.state.or.us>
Sent: Tuesday, February 10, 2015 2:06 PM
To: Koch, Kristine; Shephard, Burt
Cc: MCCLINCY Matt; PETERSON Jenn L
Subject: RE: Benthic Toxicity PRGs

Kristine-

We'd like to make sure we know what figures you are referring to in the highlighted section below, so could you please send me those referenced figures and confirm when they were created?

Thanks-
Tom

From: Koch, Kristine [mailto:Koch.Kristine@epa.gov]
Sent: Saturday, February 07, 2015 4:43 PM
To: GAINER Tom; Shephard, Burt
Cc: MCCLINCY Matt; PETERSON Jenn L
Subject: RE: Benthic Toxicity PRGs

Tom – Thanks for providing DEQ's expressed concerns. EPA is already working on updating the discussion of the benthic risk area development for the SMAs as part of section 3. I'm not clear on your issue number 2, but maybe as DEQ sees how the project progresses, your issues will be less of a concern. EPA is not drafting figures of benthic risk based on the PRGs for the FS. EPA and LWG have developed updated SMAs for benthic risk; these have been provided to DEQ. EPA is preparing figures exceeding all human health PRGs and all ecological PRGs to present in Section 2. There may be some figures in the BERA that may help you in determining areas exceeding benthic risk.

If you would like to discuss this further, we can discuss at the EPA/DEQ meeting next Wednesday.

Regards,

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

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From: GAINER Tom [mailto:GAINER.Tom@deq.state.or.us]
Sent: Thursday, February 05, 2015 8:41 AM
To: Koch, Kristine; Shephard, Burt
Cc: MCCLINCY Matt; PETERSON Jenn L; GAINER Tom
Subject: RE: Benthic Toxicity PRGs

Kristine and Burt-

Thanks for providing your explanations below. While it sheds some light on our questions, DEQ has remaining concerns and the following comments:

1. DEQ understands that the benthic toxicity risk layer developed by EPA for the FS did not use the numeric PRG values in the draft PRG table. While your email provides an overview of the process, it does not provide a number of the important details. DEQ asks that the criteria used to map the benthic toxicity footprint be clearly described in FS Section 3 and how the criteria relate to identifying areas that may exceed bioassay toxicity endpoint PRGs listed in the table. A write up similar to the LWG's comprehensive benthic approach is requested.
2. DEQ cannot comment on the benthic toxicity sediment PRGs without understanding how they will be used/applied and how they relate to the benthic toxicity risk layer (above). Consequently, DEQ considers the benthic toxicity sediment PRGs an open issue until we have more information.
3. DEQ requests that figures be prepared comparing the Section 2 benthic toxicity sediment PRGs footprint with the footprint used in FS Section 3. Once this is done, DEQ will have a better understanding if the benthic toxicity sediment PRGs reasonably match up with the benthic toxicity risk layer footprint and can be used to predict post-remedy acceptable risk (i.e., are protective).

Let's discuss the timing and need for a follow-up meeting to resolve these issues.

Thanks-

Tom

From: Koch, Kristine [<mailto:Koch.Kristine@epa.gov>]

Sent: Monday, February 02, 2015 2:41 PM

To: PETERSON Jenn L; Shephard, Burt

Cc: GAINER Tom; MCCLINCY Matt

Subject: RE: Benthic Toxicity PRGs

Jenn – I consulted with Burt and we prepared this response together. First, I want to state the EPA is not doing something new or different from what was done in the final BERA. The LWG followed an older process in their draft FS to develop benthic risk areas for remediation. What EPA did was use the approach used in the final BERA to make sure the FS areas of benthic risk were more accurately portrayed. In our review of the draft FS, we noted that there were some benthic risk areas based on the results of the BERA that the LWG didn't identify in their benthic risk areas in the draft FS. Burt and Chip did a thorough review, which included overlaying BERA maps from its various lines of evidence for benthic risk to the LWG proposed maps of benthic risk areas in their draft of the FS. We have already discussed this with the LWG and they have updated those mapping layers for the draft final FS. Those mapping layers are part of Section 3 development of the alternatives, not section 2, since they are depiction remedial action areas and not used for development of PRGs. EPA is still developing Section 3 text and anticipates providing that text to the TCT in March.

EPA is not using either the LRM or FPM in the FS. Those models were used in the BERA and all areas that had predicted toxicity from either model, or empirically measured toxicity are included in the benthic risk layer of the FS. All alternatives include the benthic risk layer, so all areas of benthic risk identified in the final BERA are being remediated in the FS. Thus, there is no reason for any additional use of the LRM or FPM in the FS beyond their use to define benthic risk areas in the BERA. There have been no modifications to either the FPM or LRM in the FS during the delineation of the benthic risk area; the model predictions used in the FS to define benthic risk areas are unchanged from their predictions in the BERA.

PRGs for benthic toxicity is really limited to the narrative criteria in the table. We also included chemical specific numeric PRGs for benthic organisms based on the individual chemical sediment quality values that were derived from the LRM in BERA (Table 6-11). Although there are technical issues with using the sediment quality values derived from the LRM as individual chemical benchmarks, as opposed to their intended use as part of models designed to estimate the magnitude

of toxicity to benthic species from the mixture of chemical concentrations at a site, in reality the individual chemical benchmarks from the models are often used just that way. In short, the chemical specific values in the PRG tables are not used in the LRM or FPM to develop Sediment Management Areas in Section 3. Further, none of the LRM values were selected as the representative PRG for RAO 5, with the exception of TBT.

The maps you appear to be asking for also exist in the BERA. The predicted toxicity LRM Pmax values for all 1400+ sediment chemistry stations are plotted in Map 6-11 of the BERA map folio, while the moderate (Level 2, Pmax of 0.50) and severe (Level 3, Pmax of 0.59) toxicity predicted by the FPM for each of the four toxicity endpoints (Chironomus survival and biomass, Hyalella survival and biomass) are plotted in Maps 6-7 to 6-10, respectively. The probable effect concentration (PEC) maximum concentration and PEC mean quotient values are plotted in BERA Maps 6-18 and 6-20, respectively. All of these BERA maps describe areas of predicted benthic risk and were used as part of the process which defined benthic risk areas in the FS. As stated earlier, neither the LRM or FPM as developed for the BERA were modified in the FS. Finally, the empirical sediment toxicity data itself is plotted in BERA Maps 6-2 (Chironomus survival), 6-3 (Chironomus biomass), 6-4 (Hyalella survival) and 6-5 (Hyalella biomass). All of the final BERA maps plot information for each individual sediment sampling station, they do not attempt to use GIS to extrapolate toxicity or lack of toxicity to the rest of the site without samples, although we have some older GIS maps from Parametrix that use nearest neighbor extrapolation to show contour plots of sediment chemistry and toxicity. None of the BERA maps, of course, show boundaries of SMAs, as these boundaries are not defined in the BERA.

Regarding your question in the last paragraph on post-remediation evaluations, we have not thought much about that beyond comparisons of site contaminants post-remedy to the PRGs, assuming the PRGs become the actual remedial goals for the site, and accounting for MNR. These evaluations will be in Section 4 of the FS, but those decisions on post-remedy PRGs will not be determined until the proposed plan/ROD. Post-remedial evaluation methods will not be part of the FS.

I hope this answers your questions. Please let us know if you still do not understand and maybe we can set up a special meeting to discuss.

Regards,

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From: PETERSON Jenn L [<mailto:PETERSON.Jenn@deq.state.or.us>]
Sent: Thursday, January 29, 2015 2:33 PM
To: Shephard, Burt
Cc: Koch, Kristine; GAINER Tom; MCCLINCY Matt
Subject: Benthic Toxicity PRGs

Hi Burt,

I wanted to follow up on our conversation yesterday regarding evaluations of benthic toxicity in the FS. I had a few follow up questions for you.

It was indicated that EPA used the benthic predictive models to define areas of concern in the FS and not the PRGs identified for benthic toxicity in Section 2. However, it was also noted that EPA did not use the LWGs “Comprehensive Benthic Approach” from the FS. Could you describe what predictive model or combination thereof was used? Specifically, which models of LRM or FPM were used? For example, something like “FPM Level 2 hits for the 4 test endpoints and the LRM PMax of 0.50 (developed to predict level 2 hits – e.g. map 6-11 in the BERA)”. Since these models were used to identify areas with unacceptable probability of toxicity, consider making this explicit in the form of a PRG that describes “unacceptable probability of toxicity”. This could be described as (for example) “a maximum probability of 50% of observing Level 2 sediment toxicity (Pmax of 0.50)”. Areas corresponding to a Pmax of 50 were identified as areas of concern; additionally, toxicity based PRGs apply”. I am not sure if predictive / measured benthic toxicity PRGs would be better described as a separate RAO or not – what do you think of this?

In my mind, the sediment benchmarks EPA identified in Section 2 could be included in addition to the predictive / toxicity PRGs as “necessary numeric PRGs due to the uncertainty in relying on Site specific models to identify bulk sediment criteria associated with causative links to observed toxicity”. If EPA has plotted areas of unacceptable probability of toxicity based on these benchmarks (exceedance of any one), it would be great to see how they line up with the Site specific predictive models discussed above.

Based on this, DEQ would like to review 1) the specific models that were used to map areas of unacceptable probability of toxicity and 2) the associated maps . Would it be possible to provide this information? Additionally, it would help to clarify what criteria / models are being used for PRGs for post-remediation evaluations. DEQ believes the 2 approaches should be the same, which was at the heart of the back and forth conversation yesterday. If EPA used the models to define areas of unacceptable probability of toxicity, then consider that these should also be used (potentially in combination with the proposed sediment SQVs) post remedy to determine if any of these area remain.

Please let me know if it would be better to discuss on the phone, and thanks for the discussion yesterday.

Jennifer